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# **Notice of Allowability**

**Application No.**

10/643,906

**Examiner**

John S. Chu

**Applicant(s)**

JIMBO ET AL.

**Art Unit**

1752

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 8/20/03.
2. ☒ The allowed claim(s) is/are 1-18.
3. ☐ The drawings filed on \_\_\_\_\_ are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
  - a) ☒ All    b) ☐ Some\*    c) ☐ None    of the:
    1. ☒ Certified copies of the priority documents have been received.
    2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
    3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

\* Certified copies not received: \_\_\_\_\_.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.  
**THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.**

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
  - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
    - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date \_\_\_\_\_.
  - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date \_\_\_\_\_.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

## **Attachment(s)**

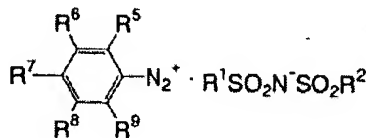
- |   |   |
|---|---|
| 1. <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 5. <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)           |
| 2. <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 6. <input type="checkbox"/> Interview Summary (PTO-413),<br>Paper No./Mail Date _____ |
| 3. <input checked="" type="checkbox"/> Information Disclosure Statements (PTO-1449 or PTO/SB/08),<br>Paper No./Mail Date <u>8/20/03</u> | 7. <input type="checkbox"/> Examiner's Amendment/Comment                              |
| 4. <input type="checkbox"/> Examiner's Comment Regarding Requirement for Deposit<br>of Biological Material                              | 8. <input checked="" type="checkbox"/> Examiner's Statement of Reasons for Allowance  |
|   | 9. <input type="checkbox"/> Other _____   |

## REASONS FOR ALLOWANCE

1. The following is an examiner's statement of reasons for allowance: The claimed invention is drawn to the following:

1. A heat-sensitive recording material comprising a substrate and a heat-sensitive recording layer containing a diazonium salt and a coupler, the heat-sensitive recording layer being disposed on or over the substrate, wherein the diazonium salt is a compound represented by the following general formula (1):

General formula (1)



wherein R<sup>1</sup> and R<sup>2</sup> each independently represent an alkyl group or an aryl group; R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> and R<sup>9</sup> each independently represent one selected from the group consisting of a hydrogen atom, a chlorine atom, a bromine atom, an alkyl group, an aryl group, an alkoxy group, an aryloxy group, an acyl group, an alkoxycarbonyl group, an aryloxycarbonyl group, a carbamoyl group, a cyano group, an alkylthio group, an arylthio group, an alkylsulfonyl group, an arylsulfonyl group, an amino group, an amido group, and a nitro group; and two or more of R<sup>1</sup>, R<sup>2</sup>, R<sup>5</sup>, R<sup>6</sup>, R<sup>7</sup>, R<sup>8</sup> and R<sup>9</sup> may be bonded to each other to form a ring.

The inventive step of the heat-sensitive recording material is seen by the Office to be the use of the diazonium salt of General formula (1) in said heat-sensitive recording material.

Particularly the use of the anion in the diazonium salt is seen to provide the novel feature. This

anion is seen to be a substituted disulfonyl amide anion. None of the prior art references of record disclose the use of the aforementioned diazonium salt and a coupler in a heat-sensitive recording material as claimed.

The closest cited prior art is to the PCT WO 98/39312 a published application to BARBERO et al. This publication discloses that diazonium salts as follows:

general formula 1:



are known, however the publication fails to disclose the diazonium salt with a coupler used in a working example coated in a layer of a heat-sensitive recording material. The publication does disclose in claim 9 of the publication a potential use of the diazonium salt for diazonium coupling reactions, which is the mechanism used in the claimed heat-sensitive recording material as claimed. None of the specific details for making a heat-sensitive recording material are taught or disclosed in BARBERO et al.

However the use of the diazo coupling reaction is well known to the skilled artisan as seen in the numerous other U.S. patents to USAMI et al, KAWABUCHI et al, YAMADA et al, HANAKI et al, MATSUSHITA et al, KOIKE et al and ITO. These references are to the same assignee of Fuji Photo Film, Ltd and disclose heat-sensitive recording materials using the diazo coupling reaction to form a recording image and none of these references disclose the particularly claimed diazonium salt of General formula (1),

Clearly there is potential *prima facie* case of obviousness for using the diazonium salt of general formula (1) of BARBERO et al in a heat-sensitive recording material wherein the skilled artisan has the knowledge to use the conventional compositions and substituting a disclosed

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diazonium salt in for other conventional diazonium salts and reasonably expect same or similar results by forming images by imagewise heat exposure. However, the examiner notes the comparative evidence in the current application on pages 68-72 and Table 1 on page 71, which is of record and must be considered during prosecution of the case. Here applicants have provided comparative evidence comparing the claimed diazonium salt of formula (1) with conventionally known diazonium cations of the salt. The examiner relies on the improved storability and the improved fixing property of the heat-sensitive recording materials comprising the claimed diazonium salt of General formula (1) disclosed in the current application at Table 1, page 71 as providing unexpected results. Because of this evidence for unexpectedly improved results of the claimed invention, any rejection over 35 U.S.C. 103(a) can be and is overcome by the secondary considerations of the claimed invention. These secondary considerations include the aforementioned improved properties to the heat-sensitive recording material not realized in the prior art references cited. As a result any *prima facie* case of obviousness would be withdrawn and the claimed invention would be seen as allowable over that prior art.

Accordingly, for the reasons stated above, claims 1-18 are seen as allowable and the claims are passed to issue.

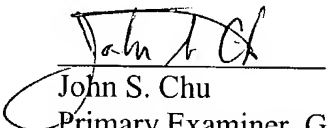
2. Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Examiner Chu whose telephone number is (571) 272-1329. The examiner can normally be reached on Monday - Friday from 9:30 am to 6:00 pm.

The fax phone number for the USPTO is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (571) 272-1700.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PMR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

  
John S. Chu  
Primary Examiner, Group 1700

J.Chu  
December 01, 2004